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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/581,072

05/31/2006

Gerhard Hamprecht

3165-144

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12/12/2007

ROTHWELL, FIGG, ERNST & MANBECK, P.C.

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WASHINGTON, DC 20005

EXAMINER

MURRAY, JEFFREY H

ART UNIT

PAPER NUMBER

1624

NOTIFICATION DATE

DELIVERY MODE

12/12/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/581,072	<b>Applicant(s)</b> HAMPRECHT ET AL.	
	<b>Examiner</b> JEFFREY H. MURRAY	<b>Art Unit</b> 1624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/31/2006</u> .   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This action is in response to an application filed on May 31, 2006. There are sixteen claims pending and sixteen claims under consideration. This is the first action on the merits. The present invention is related to The present invention relates to a process for preparing 3-phenyl(thio)uracils and 3-phenyldithiouracils of the formula I.

#### ***Priority***

2. Acknowledgment is made of Applicant's claim for foreign priority. This application, U.S. Application No. 10/581,072, filed May 31, 2006, is a national stage application of PCT application PCT/EP04/13615, filed December 1, 2004, and claims foreign priority to German Application No. 10356474.8, filed December 3, 2003.

#### ***Specification***

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.

- (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

4. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any of the errors of which applicant may become aware of in the specification.

#### ***Claim Objections***

5. Claim 8 is objected to under 37 CFR 1.75 as being a substantial duplicate of Claim 1. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

#### ***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

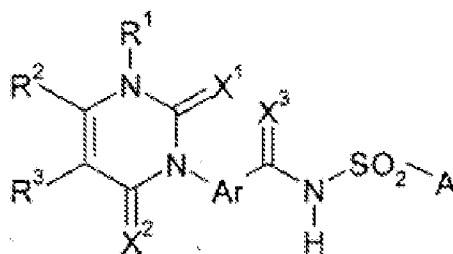
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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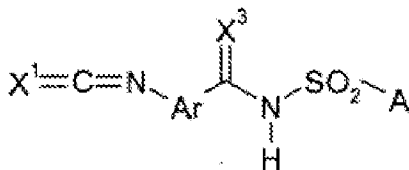
15. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

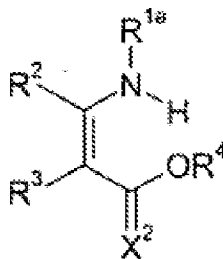
16. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sting, et. al., (EP0831091A) in view Graver Tank & Mfg. Co. v. The Linde Air Products Co., (USSC 1950) 339 US 695, 85 USPQ 328. The current application relates to a process for preparing 3-phenyl(thio)uracils and 3-phenyldithiouracils of the general formula I:



comprising the reaction of a phenyliso(thio)cyanate of the Formula II:



with an enamine of the general formula III:



The published reference Sting, et. al. is a European application that teaches a process of making a group of compounds which are similar in scope to the current application. Sting et. al., like the current application, teaches the process for the production of 3-phenyl-uracil derivatives, by reacting phenylisocyanates, with N-alkyl-enamines. Within Sting et. al. almost identical 3-aryl-uracils are synthesized. The process is identical to the current application but for one term. The current application allows for the process to take place with a uracil, thiouracil or dithiouracil, or where any of X<sub>1</sub>, X<sub>2</sub>, and X<sub>3</sub> may be a C(=O) or C(=S). (This same process is also seen in Strunk, et. al. U.S. 5,169,430.) Sting, et. al. has an identical core structure to the current patent application and teaches uracils, not thiouracil derivatives being synthesized using the same process.

The court decision of Graver Tank teaches that *the important factor in determining a test for equivalency in a prior art document is whether a person who is reasonably skilled in the art would recognize the equivalency in the compound or composition*. In *Ex parte Wiseman* (POBA 1953) 98 USPQ 277, a difluorinated compound was held unpatentable over the prior art dichloro compound on the basis of analogical reasoning. A compound need not be an adjacent homolog or position isomer of a prior art compound in order to be susceptible to a rejection based on structural

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obviousness; the name used to designate the structural relationship between compounds is not controlling, it is the closeness of that relationship. In *re Payne et al.* (CCPA 1979) 606 F2d 303, 203 USPQ 245. When chemical compounds have “very close” structural similarities and similar utilities, without more, a *prima fade* case of obviousness may be made. In *re Grabiak* (CAFC 1985) 769 F2d 729, 226 USPQ 870.

Relating the information from Graver Tank to the Sting et. al. publication, it would have been obvious for a person of ordinary skill in the art to attempt the same process and replace the carbonyl groups of a uracil with a thione derivative to synthesize a thiouracil or dithiouracil in the same position. The actual process involved in this reaction is identical, and the residue groups of the prior art and the application are so similar that one skilled in the art would expect that any differences would be inconsequential in the reaction which takes place. That is to say, both Sting et. al. and the current application take a phenylisocyanate and react it with an enamine to synthesize a 3-phenyluracil or 3-phenylthiouracil. The difference between sulfur and oxygen are well known in the chemical arts to have similar properties. For example, both elements fall within the same family in the periodic table of the chemical elements. As atoms, both oxygen and sulfur contain the same valence number, similar chemical properties and numerous chemical literature has suggested the attempted use of a thiol over an alcohol or a thiourea in place of a urea and vice versa. Due to the numerous chemical property similarities of oxygen and sulfur, this substitution would be attempted by anyone skilled in the art.

It would have been obvious to one skilled in the arts at the time of the invention to be motivated to attempt the same process with a thiouracil or dithiouracil. Sting et. al. shows a uracil being synthesized by way of reacting a phenylisocyanate and an N-enamine, and Graver Tank shows that  $X_1$ ,  $X_2$ , and  $X_3$  may be a  $C(=O)$  or  $C(=S)$  and that any of these derivatives would be chemical equivalents, and thus would not alter or affect the claimed process in any way. Due to the numerous chemical property similarities of sulfur and oxygen, this substitution would be attempted by anyone skilled in the art who was attempting to make thiouracils or dithiouracils. The claims above are obvious because the substitution of one known element for another (sulfur for oxygen) would have yielded predictable results in the process to one of ordinary skill in the art at the time of the invention.

### ***Conclusion***

10. Claims 1-16 are rejected.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey H. Murray whose telephone number is (571) 272-9023. The examiner can normally be reached on Mon-Thurs. 7:30-6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. James O. Wilson can be reached at 571-272-0661. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a US PTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeffrey H Murray/  
Examiner, Art Unit 1624

/James O. Wilson/  
Supervisory Patent Examiner  
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